BY ORDER OF THE CHIEF,
NATIONAL GUARD BUREAU

MANPOWER STANDARD 23B1A3

28 AUGUST 2003

Manpower Standard

METALS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air National Guard Manpower Standard (ANGMS) quantifies the manpower required to accomplish the tasks described in the process oriented description (POD) for varying levels of workload in the 189th Airlift Wing whose mission it is to provide aircrew training for students from each branch of the military that flies the C-130 aircraft and from 27 foreign countries. This standard applies to the 189th Airlift Wing, Little Rock Air Force Base, Arkansas, and encompasses all major processes performed within the Metals function. It does not apply to any other units. This standard is applicable to peacetime operations only. The Air National Guard (ANG) is authority for the approval and publication of ANG Manpower Standards. Air Force (AF) and ANG directives contain policy and procedural guidance for the operation of the Metals function. This standard was developed in accordance with AF Instruction (AFI) 38-201, *Determining Manpower Requirements,* and AF Manual (AFMAN) 38-208, Volume 1, *Air Force Management Engineering Program (MEP) Processes,* and AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP) - Quantification Tools.* Send comments and suggested improvements on AF IMT 847, *Recommendation for Change of Publication,* through channels, to ANG, Management Engineering Branch (ANG/XPME/Operating Location TN [OLTN]), 106 Briscoe Drive, McGhee Tyson Air National Guard Base, TN 37777-6283.

1. STANDARD DATA.

1.1. Approval Date: 28 August 2003.

1.2. Man-hour Data Sources: Operational Audit (historical record and technical estimate) technique was used to collect/determine man-hour/manpower data.

1.3. Standard Manpower Equation: Y= 72.12 + 14.82X.

1.4. Workload Factor.

1.4.1. Title: X= Primary Aircraft Inventory (PAI).

1.4.2. Definition: Number of PAI authorized to support the unit training mission.

1.4.3. Source: USAF Programming Document (PD), Volume 2, maintained by NGB/FM.

1.5. Points of Contact.

1.5.1. Functional: Col John J Samuhel, 189 MX/CC

1.5.2. Manpower: George W. Tatum III, ANG/XPME/OLTN

2. Application Instructions.

2.1. Equation. Apply the equation in Paragraph 1.3., to determine the required man-hours.

2.2. Man-Hour Availability Factor (MAF). Divide the resulting man-hours by the appropriate MAF/overload factor. The answer, rounded up, will quantify the required manpower.

2.3. Upper and Lower Extrapolation Limits:

2.3.1. $Y_U = 238.388$

2.3.2. $Y_L = 143.033$

3. STATEMENT OF CONDITIONS. The normal hours of operation for this function are 80 hours per two-week period. The alternate work schedule of eight nine hour days, and one eight hour day is the norm. No environmental, equipment, or facility conditions affect this Manpower Standard.

DANIEL JAMES III, Lieutenant General, USAF
Director, Air National Guard

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 38-201 *Determining Manpower Requirements*

AFMAN 38-208, Volume 1, *Air Force Management Engineering Program (MEP)-Process*

AFMAN 38-208, Volume 2, *Air Force Management Engineering Program (MEP)-Quantification Tools*

AFMS 00AA, *Standard Indirect Description*

Abbreviations and Acronyms

AF - Air Force

AFMS - Air Force Manpower Standard

AFOSH - Air Force Occupational Safety and Health

AGE - Aerospace Ground Equipment

ANG - Air National Guard

ANGMS - Air National Guard Manpower Standard

CAMS - Core Automated Maintenance Automated System

FOD - Foreign Object Damage

IAW - In Accordance With

MAF - Man-Hour Availability Factor

MEP - Management Engineering Program

MSI - Manpower Standards Implementation

PAI - Primary Aircraft Inventory

PD - Programming Document

PMEL - Precision Measurement Equipment Laboratory

POD - Process Oriented Description

PPE - Personal Protective Equipment

QEC - Quick Engine Change

TCTO - Time Compliance Technical Order

TO - Technical Order

UMD - Unit Manpower Document

UTA - Unit Training Assembly

Terms

Air National Guard Manpower Standard (ANGMS). A numbered, specialized publication that quantifies manpower requirements for a work center, it also includes approved variances. See AFI 38-201.

Man-Hour. A unit of measuring work. It is equivalent to one person working at a normal pace for 60 minutes, two people working at a normal pace for 30 minutes, or similar combination of people working at a normal pace for a period of time equal to 60 minutes.

Manpower Standard. The basic tool used to determine the minimum level of manpower required to support a function. It is a quantitative expression that represents a work center's man-hour requirements in response to varying levels of workload.

Process Oriented Description. A format that shows work center responsibilities structured for easy measurement of work categories, tasks and subtasks.

Attachment 2

PROCESS ORIENTED DESCRIPTION
METALS

Table A2.1. Listing of Functional Processes.

1.	ON-EQUIPMENT MAINTENANCE:
1.1.	PERFORMS MACHINE SHOP REPAIR/FABRICATION/WELDING. Performs machine shop repair, fabrication, and welding on aircraft airframe component. Inspects, troubleshoots, and evaluates damage.
1.1.1.	REPAIRS SEAT TRACK:
1.1.1.1.	MEASURES SEAT TRACK HOLE FOR PROPER TOLERANCE.
1.1.1.2.	MEASURES SEAT TRACK PIN FOR PROPER TOLERANCE.
1.1.1.3.	MANUFACTURES SEAT TRACK STOP.
1.1.1.4.	DRILLS SEAT TRACK STOP.
1.1.2.	REPAIRS CREW SEAT.
1.1.3.	REPAIRS CREW DOOR:
1.1.3.1.	FINISHES/MACHINES CREW DOOR JETISON BRACKET IN COCKPIT COMPARTMENT.
1.1.3.2.	DRILLS CREW DOOR JETISON BRACKET IN COCKPIT COMPARTMENT.
1.1.3.3.	MEASURES DEPTH OF DENT ON CREW DOOR.
1.1.4.	REPAIRS AIRCRAFT NOSE LANDING GEAR:
1.1.4.1.	MANUFACTURES CLAMP BLOCK ON NOSE LANDING GEAR.
1.1.4.2.	DRILLS NOSE LANDING GEAR TRUNNION.
1.1.4.3.	SPOT-FACES NOSE LANDING GEAR TRUNNION.
1.1.4.4.	MANUFACTURES NOSE LANDING GEAR TRUNNION TOOL.
1.1.4.5.	MANUFACTURES NOSE LANDING GEAR UPLOCK BRACKET.
1.1.4.6.	DRILLS NOSE LANDING GEAR UPLOCK BRACKET.

1.1.4.7.	REMOVES STUCK OR STRIPPED HARDWARE ON NOSE LANDING GEAR.
1.1.4.8.	DRILLS NOSE LANDING GEAR DOOR HINGE BRACKET.
1.1.4.9.	SPOT-FACES NOSE LANDING GEAR DOOR HINGE BRACKET.
1.1.4.10.	MANUFACTURES NOSE LANDING GEAR DOOR BOLT.
1.1.4.11.	WELDS CRACKS ON NOSE LANDING GEAR DOOR.
1.1.4.12.	MANUFACTURES CLAMP BLOCK IN NOSE LANDING GEAR.
1.1.5.	REPAIRS MAIN LANDING GEAR:
1.1.5.1.	MEASURES WEAR LIMIT ON MAIN LANDING GEAR COMPONENT.
1.1.5.2.	DRILLS MAIN LANDING GEAR TRACK.
1.1.5.3.	SPOT-FACES MAIN LANDING GEAR TRACK.
1.1.5.4.	FABRICATES LOWER BOW BEAM ON MAIN LANDING GEAR.
1.1.5.5.	DRILLS LOWER BOW BEAM ON MAIN LANDING GEAR.
1.1.5.6.	SPOT-FACES LOWER BOW BEAM ON MAIN LANDING GEAR.
1.1.5.7.	DRILLS DRAG PIN BUSHING ON MAIN LANDING GEAR.
1.1.5.8.	REMOVES DAMAGED DRAG PIN BUSHING ON MAIN LANDING GEAR.
1.1.5.9.	REMOVES MAIN LANDING GEAR WHEEL BRAKE DRIVE KEY.
1.1.5.10.	WELDS CRACK ON MAIN LAINDING GEAR DOOR.
1.1.5.11.	MANUFACTURES CLAMP BLOCK IN MAIN LANDING GEAR.
1.1.6.	REPAIRS ENGINE TRUSS MOUNT:
1.1.6.1.	PERFORMS VISUAL INSPECTION OF ENGINE TRUSS MOUNT.
1.1.6.2.	PERFORMS PRECISION MEASUREMENT OF ENGINE TRUSS MOUNT CONE.
1.1.6.3.	DRILLS ENGINE TRUSS MOUNT.
1.1.6.4.	REAMS ENGINE TRUSS MOUNT.

1.1.6.5.	SPOT-FACES ENGINE TRUSS MOUNT.
1.1.6.6.	INSTALLS BUSHING ENGINE TRUSS MOUNT.
1.1.6.7.	REMOVES DAMAGED AND STUCK HARDWARE FROM ENGINE TRUSS MOUNT.
1.1.6.8.	INSTALLS HELI-COIL ENGINE TRUSS MOUNT.
1.1.7.	REPAIRS QUICK ENGINE CHANGE (QEC):
1.1.7.1.	WELDS TAIL PIPE QEC.
1.1.7.2.	WELDS BEARING SUPPORT QEC.
1.1.7.3.	DRILLS HELI-COIL FOR QEC.
1.1.7.4.	INSTALLS HELI-COIL FOR QEC.
1.1.7.5.	DRILLS SLIM-SERT FOR QEC.
1.1.7.6.	INSTALLS SLIM-SERT FOR QEC.
1.1.7.7.	DRILLS FOR STUD LOCK INSERT FOR QEC.
1.1.7.8.	INSTALLS STUD LOCK INSERT FOR QEC.
1.1.7.9.	REMOVES STUCK OR DAMAGED HARDWARE FROM QEC.
1.1.7.10.	DRILLS FOR SAFETY WIRE HOLE FOR QEC.
1.1.8.	REPAIRS WING FLAP:
1.1.8.1.	MEASURES CONTROL ROD FOR WEAR LIMIT ON WING FLAP.
1.1.8.2.	REMOVES BEARING IN WING FLAP.
1.1.8.3.	INSTALLS BEARING IN WING FLAP.
1.1.8.4.	REMOVES DAMAGED OR STUCK HARDWARE IN WING FLAP.
1.1.8.5.	REMOVES BUSHING IN WING FLAP.
1.1.8.6.	INSTALLS BUSHING IN WING FLAP.
1.1.8.7.	REPAIRS AIRCRAFT WING. Removes damaged or stuck hardware.
1.1.9.	REPAIRS AILERON:

1.1.9.1.	MEASURES CONTROL ROD FOR WEAR LIMIT ON AILERON.
1.1.9.2.	REMOVES BEARING IN ON AILERON.
1.1.9.3.	INSTALLS BEARING IN ON AILERON.
1.1.9.4.	REMOVES DAMAGED OR STUCK HARDWARE IN ON AILERON.
1.1.9.5.	REMOVES BUSHING IN ON AILERON.
1.1.9.6.	INSTALLS BUSHING IN ON AILERON.
1.1.10.	REPAIRS ELEVATOR:
1.1.10.1.	MEASURES CONTROL ROD FOR WEAR LIMIT ON ELEVATOR.
1.1.10.2.	REMOVES BEARING IN ON ELEVATOR.
1.1.10.3.	INSTALLS BEARING IN ON ELEVATOR.
1.1.10.4.	REMOVES DAMAGED OR STUCK HARDWARE IN ON ELEVATOR.
1.1.10.5.	REMOVES BUSHING IN ON ELEVATOR.
1.1.10.6.	INSTALLS BUSHING IN ON ELEVATOR.
1.1.10.7.	REPAIRS RUDDER.
1.1.10.8.	MEASURES CONTROL ROD FOR WEAR LIMIT ON RUDDER.
1.1.10.9.	REMOVES BEARING IN ON RUDDER.
1.1.10.10.	INSTALLS BEARING IN ON RUDDER.
1.1.10.11.	REMOVES DAMAGED OR STUCK HARDWARE IN ON RUDDER.
1.1.10.12.	REMOVES BUSHING IN ON RUDDER.
1.1.10.13.	INSTALLS BUSHING IN ON RUDDER.
1.1.11.	REPAIRS AEROSPACE GROUND EQUIPMENT (AGE):
1.1.11.1.	REPAIRS MAINTENANCE STAND. Performs structural repair, welding, brazing, and fabrication.
1.1.11.1.1.	REPAIRS B-1 STAND.
1.1.11.1.2.	PERFORMS VISUAL INSPECTION OF B-1 STAND.

1.1.11.1.3.	DRILLS B-1 STAND.
1.1.11.1.4.	REAMS B-1 STAND.
1.1.11.1.5.	WELDS B-1 STAND.
1.1.11.1.6.	BRAZES B-1 STAND.
1.1.11.1.7.	MANUFACTURES REPAIR ON B-1 STAND.
1.1.11.1.8.	INSTALLS REPAIR ON B-1 STAND.
1.1.11.2.	REPAIRS B-4 STAND:
1.1.11.2.1.	PERFORMS VISUAL INSPECTION OF B-4 STAND.
1.1.11.2.2.	DRILLS B-4 STAND.
1.1.11.2.3.	REAMS B-4 STAND.
1.1.11.2.4.	WELDS B-4 STAND.
1.1.11.2.5.	BRAZES B-4 STAND.
1.1.11.2.6.	MANUFACTURES REPAIR ON B-4 STAND.
1.1.11.2.7.	INSTALLS REPAIR ON B-4 STAND.
1.1.11.3.	REPAIRS B-5 STAND:
1.1.11.3.1.	PERFORMS VISUAL INSPECTION OF B-5 STAND.
1.1.11.3.2.	DRILLS B-5 STAND.
1.1.11.3.3.	REAMS B-5 STAND.
1.1.11.3.4.	WELDS B-5 STAND.
1.1.11.3.5.	BRAZES B-5 STAND.
1.1.11.3.6.	MANUFACTURES REPAIR ON B-5 STAND.
1.1.11.3.7.	INSTALLS REPAIR ON B-5 STAND.
1.1.11.4.	REPAIRS GAS TURBINE COMPRESSOR.
1.1.11.4.1.	COMPRESSOR MOUNT.

1.1.11.4.2.	EXHAUST DUCT.
2.	SUPPORT EQUIPMENT REPAIR:
2.1.	LOCAL MANUFACTURES
2.1.1.	EVALUATES AND DRAWS PRINT.
2.1.2.	ORDERS MATERIALS.
2.1.3.	CUTS OR MACHINES MATERIALS.
2.1.4.	ASSEMBLES MATERIALS.
3.	TIME COMPLIANCE TECHNICAL ORDER (TCTO):
3.1.	PERFORMS MAINTENANCE REQUIRED ON/OFF THE AIRCRAFT IN ACCORDANCE WITH (IAW) APPLICABLE TCTO.
3.2.	COMPLETES DOCUMENTATION ON AIRCRAFT FORM.
4.	ASSISTANCE. Assists fuel shop.
4.1.	ASSISTS FUEL SHOP WITH IN-TANK MAINTENANCE.
4.2.	PROVIDES THIRD MAN IAW AIR FORCE OCCUPATIONAL SAFETY & HEALTH (AFOSH) 91-25, *CONFINED SPACE*.
5.	TECHNICAL DATA SUBACCOUNT MAINTENANCE:
5.1.	RECEIVES AND POSTS TECHNICAL DATA, CHANGE, AND SUPPLEMENT TO TECHNICAL ORDER (T.O.) FILE.
5.2.	MAINTAINS AND INVENTORIES FILE FOR SERVICEABILITY.
6.	CORE AUTOMATED MAINTENANCE AUTOMATED SYSTEM (CAMS):
6.1.	CREATES AND SCHEDULES DISCREPANCY IN CAMS.
6.2.	CLEARS DISCREPANCY IN CAMS.
6.3.	ACCESSES APPLICABLE CAMS MENU AND DATA SCREEN IN CAMS.
6.4.	SCHEDULES AND UPDATES TRAINING REQUIREMENT IN CAMS.
7.	HAZARDOUS WASTE PROGRAM MANAGEMENT:
7.1.	PROCESSES HAZARDOUS WASTE.

7.2.	IDENTIFIES HAZARDOUS WASTE.
7.3.	LABELS HAZARDOUS WASTE.
7.4.	CONTAINS HAZARDOUS WASTE.
7.5.	DISPOSES OF HAZARDOUS WASTE.
7.6.	MAINTAINS COLLECTION FACILITY.
7.7.	MAINTAINS HAZARDOUS WASTE ACCUMULATION POINT.
7.8.	MAINTAINS SATELLITE ACCUMULATION POINT.
7.9.	PERFORMS WEEKLY INSPECTION ON HAZARDOUS WASTE ACCUMULATION POINT.
7.10.	MAINTAINS PROTECTIVE EQUIPMENT FOR HAZARDOUS WASTE ACCUMULATION POINT.
7.11.	INSPECTS PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR HAZARDOUS WASTE ACCUMULATION POINT.
7.12.	MAINTAINS AND ORDERS PPE FOR HAZARDOUS WASTE ACCUMULATION POINT.
8.	FOREIGN OBJECT DAMAGE (FOD) WALK/INSPECTION. Performs walk-around of maintenance complex and runway for debris.
9.	PRECISION MEASUREMENT EQUIPMENT LABORATORY (PMEL):
9.1.	SCHEDULES CALIBRATION.
9.2.	MAINTAINS DOCUMENTATION.
9.3.	DELIEVERS ITEM TO BE CALIBRATED.
10.	BENCH STOCK:
10.1.	MAINTAINS BENCH STOCK.
10.2.	DETERMINES REQUIREMENT FOR BENCH STOCK.
10.3.	ORDERS BENCH STOCK FROM SUPPLY ON CAMS.
10.4.	MAINTAINS REQUIRED DOCUMENTATION FOR BENCH STOCK.

10.5.	PERFORMS ANNUAL BENCH STOCK REVIEW:
10.5.1.	REVIEWS ANNUAL BENCH STOCK LISTING.
10.5.2.	ADDS OR DELETES BENCH STOCK.
11.	WORK ORDER RESIDUE:
11.1.	MAINTAINS WORK ORDER RESIDUE.
11.2.	DETERMINES REQUIREMENT FOR WORK ORDER RESIDUE.
11.3.	ORDERS WORK ORDER RESIDUE FROM SUPPLY UTILIZING CAMS.
11.4.	STORES AND DISTRIBUTES WORK ORDER RESIDUE AS REQUIRED.
12.	SHOP STOCK:
12.1.	MAINTAINS SHOP STOCK.
12.2.	DETERMINES REQUIREMENT.
12.3.	ORDERS PART FROM SUPPLY UTILIZING CAMS.
12.4.	STORES IN BINS UPON RECEIPT.
12.5.	MAINTAINS REQUIRED DOCUMENTATION.
13.	SPECIAL PLANNING OR SCHEDULING:
13.1.	PREPARES FOR UNIT TRAINING ASSEMBLY (UTA).
13.2.	ATTENDS PRE-UTA MEETING.
13.3.	SCHEDULES TRAINING REQUIREMENT FOR UTA.
13.4.	PREPARES FOR ANNUAL TOUR.
13.5.	FILLS OUT AND TURNS IN ANNUAL TRAINING REQUEST.
14.	MISCELLANEOUS EQUIPMENT (DUAL RAILS) REPAIR:
14.1.	REPAIRS DUAL RAILS.
14.2.	PERFORMS VISUAL INSPECTION OF DUAL RAILS.
14.3.	DRILLS DUAL RAILS.

14.4.	REAMS DUAL RAILS.
14.5.	WELDS DUAL RAIL.
14.6.	MANUFACTURES REPAIR ON DUAL RAILS.
14.7.	INSTALLS REPAIR ON DUAL RAILS.
15.	SHOP EQUIPMENT MAINTENANCE:
15.1.	MAINTAINS INSPECTION PROGRAM FOR SHOP EQUIPMENT.
15.2.	SCHEDULES SHOP EQUIPMENT INSPECTION IN CAMS.
15.3.	PERFORMS MONTHLY, QUARTERLY, SEMI-ANNUAL AND ANNUAL INSPECTION ON SHOP EQUIPMENT.
15.4.	COMPLETES AND CLEARS SCHEDULED SHOP EQUIPMENT INSPECTION IN CAMS.
16.	INDIRECT. Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of standard indirect work are: Administers Civilian, Officer, and Enlisted Personnel; Directs Work Center Activity; Provides Administrative Support; Prepares for and Conducts/Attends Meeting; Administers Training; Manages Supplies; Maintains Equipment; and Performs Cleanup.

Attachment 3

MANPOWER TABLE

A3.1. Standard Manpower Table

Air Force Specialty Title	AFSC	Grade	Manpower Requirement	
Acft Metals Tech Mech	2A7XX	Civ	1	2
Total			1	2

NOTE. AFSCs may be adjusted at the discretion of the Commander.